

XXV. *Some Account of the Galls found on a Species of Oak from the Shores of the Dead Sea.* By AYLMER BOURKE LAMBERT, Esq., F.R.S. V.P.L.S., &c.

Read June 2, 1835.

SOME time ago I had the honour to submit to the Society the branch of a shrub from Monte Video bearing Galls containing a new insect brought by Mr. Earle, who accompanied Captain Fitzroy in the 'Beagle.' I have now the pleasure to exhibit specimens and a drawing of the far-famed apples "*Mala insana*" from the mountains east of the Dead Sea, and which now proves to be a Gall on a species of oak, containing an insect. These Galls were brought home by the Hon. Robert Curzon, who has lately returned from the Holy Land. They are the first that have been seen in England, and will enable us to clear up the many great mistakes that have been made by travellers about them. Mr. Curzon tells me the tree that produces them grows in abundance on the mountains in the neighbourhood of the Dead Sea, and is about the size of our apple-tree. It is, perhaps, the "*Quercus foliis dentato-aculeatis*" mentioned by Hasselquist as growing on Mount Tabor (*Trav. p.* 281.). There appear to be two or three different plants for whose fruit these Galls have been mistaken, viz. *Solanum sodomium*, which appears to have been confounded with *Solanum Melongena*, and *Calotropis gigantea*, &c. &c. I shall refer to what Hasselquist says (p. 287.) of the *Mala insana*, and likewise the account given of it in that useful work, the Modern Traveller, by Mr. Conder, who seems to have brought together all that has been said or written on this most interesting subject: and what is very extraordinary, and greatly to the praise of that gentleman,—having probably never seen the production itself,—he rightly guessed its real nature. Mr. Curzon informs me these Galls when on the tree are of a rich purple, and varnished over with a soft substance of the consistence of honey, shining with a most brilliant lustre in the sun, which makes the Galls appear like a most delicious and tempting fruit. Having had

the curiosity to taste a small quantity of the interior of one, I found it the strongest of bitters, and that it may truly be said of it, "as bitter as gall."

The Gall is pear-shaped, with a circle of small sharp-pointed protuberances on the upper part of it, which appear to be formed by the insect for air or defence, or some other purpose. In each of the Galls there is an aperture through which the insect escapes, and in the centre there is a small round hole, or *nidus*, where it has lodged.

Since writing the above, I find the leaves of the oak to be those of *Quercus infectoria*, which is accurately figured in Olivier's Travels in the Levant, and that the Galls are identical with those of commerce. The tree grows abundantly throughout Syria. The insect has been named by Olivier *Diplolepis*; and it is also accurately figured by him in the above-mentioned work, but he does not appear to have been aware of the Galls being the same with the *Mala insana*.

The following are extracts from Conder's Modern Traveller :

"There yet remains to be noticed, in connexion with this subject, the far-famed apples

"which grew
Near that bituminous lake where Sodom stood."

Tacitus and Josephus both mention this fruit as beautiful to the eye, but crumbling at the touch to dust and bitter ashes*. Reland, Maundrell and Shaw all express themselves as sceptical concerning its existence. But none of them explored the borders of the lake sufficiently to entitle them to give a decided opinion on the subject, having only seen its northern shore. Pococke is inclined to lay more stress on the ancient testimonies; and he supposes the apples to be pomegranates, "which having a tough, hard rind, and being left on the trees two or three years, the inside may be dried to dust, and the outside may remain fair." Hasselquist however, the pupil of Linnæus, pronounces the *Poma sodomitica* to be the fruit of the *Solanum Melongena*, (Egg-

* Book of Wisdom, chap. x. verse 7.—". . . of whose wickedness even to this day the waste land that smoketh is a testimony, and plants bearing fruit that never come to ripeness; and a standing pillar of salt is a monument of an unbelieving soul."

† See also Wisdom x. 7.

plant Nightshade, or Mad-apple,) which he states to be found in great abundance round Jericho, in the valleys near the Jordan, and in the neighbourhood of the Dead Sea. "It is true," he says, "that these apples are sometimes full of dust, but this appears only when the fruit is attacked by an insect (*Tenthredo*), which converts the whole of the inside into dust, leaving nothing but the rind entire, without causing it to lose any of its colour." M. Seetzen, differing from Hasselquist in opinion, supposes the apple of Sodom to be the fruit of a species of cotton-tree, which, he was told, grows in the plain of El Ghor, in appearance resembling a fig-tree, and known by the name of *Abeschaez*. The cotton is contained in the fruit, which is like a pomegranate, but has no pulp. Chateaubriand follows with his discovery of what he concludes to be the long-sought fruit. The shrub which bears it, he says, grows two or three leagues from the mouth of the Jordan: it is thorny, with small taper leaves, and its fruit is exactly like the little Egyptian lemon both in size and colour. "Before it is ripe it is filled with a corrosive and saline juice: when dried it yields a blackish seed, which may be compared to ashes, and which in taste resembles bitter pepper." He gathered half a dozen of these fruits, but has no name for them either popular or botanical. Next comes Mr. Jolliffe. He found in a thicket of brushwood, about half a mile from the plain of Jericho, a shrub five or six feet high, on which grew clusters of fruit, about the size of a small apricot, of a bright yellow colour, "which, contrasting with the delicate verdure of the foliage, seemed like the union of gold with emeralds. Possibly, when ripe, they may crumble into dust upon any violent pressure." Those which this gentleman gathered did not crumble, nor even retain the slightest mark of indenture from the touch; they would seem to want, therefore, the most essential characteristic of the fruit in question. But they were not ripe. This shrub is probably the same as that described by Chateaubriand. Lastly, Captains Irby and Mangles have no doubt that they have discovered it in the oskar plant, which they noticed on the shores of the Dead Sea, grown to the stature of a tree, its trunk measuring, in many instances, two feet or more in circumference, and the boughs at least fifteen feet high. The filaments inclosed in the fruit somewhat resemble the down of a thistle, and are used by the natives as a stuffing for their cushions; "they likewise twist them, like thin rope, into matches for their guns, which, they

assured us, required no application of sulphur to render them combustible." This is probably the same tree that M. Seetzen refers to. But still the correspondence to the ancient description is by no means perfect; there being little resemblance between cotton or thistle-down, and ashes or dust. M. Chateaubriand's golden fruit, full of bitter seed, comes the nearest to what is told us of the deceitful apple. If it be anything more than a fable, it must have been a production peculiar to this part of Palestine, or it would not have excited such general attention. On this account the *Oskar* and *Solanum* seem alike unentitled to the distinction; and for the same reason, the pomegranate must altogether be excluded from consideration. The fruit of the *Solanum Melongena*, which belongs to the same genus as the common potato, is white, resembling a large egg, and is said to impart an agreeable acid flavour to soups and sauces, for the sake of which it is cultivated in the South of Europe. This could hardly be what Tacitus and Josephus referred to. It is possible, indeed, that what they describe may have originated, like the oak-galls in this country, in the work of some insect: for these remarkable productions sometimes acquire a considerable size and beauty of colour. Future travellers will be inexcusable if they leave this question undecided."

EXPLANATION OF TAB. XXII.

- Fig. 1. Leaf.
2. Ditto to show the under side.
3. Branch bearing a gall.
4. Gall separate.
5, 5. Sections of a gall.